



TERRY Environmental Services

CLIENTS FIRST ALWAYS

December 7, 2017

South Carolina Department of Health and Environmental Control
Bureau of Land & Waste Management
2600 Bull Street
Columbia, South Carolina 29201

Attention: Bobbi Coleman, Hydrogeologist

Reference: **CORRECTIVE ACTION PLAN ADDENDUM**
Hot Spot #2015
4424 South Irby Street, Florence, South Carolina
SCDHEC Site ID #17760
TERRY Project #2230.13



Dear Ms. Coleman:

As requested in the SCDHEC letter dated November 6, 2017, TERRY Environmental Services, Inc. has prepared this response on behalf of the R.L. Jordan Oil Company. The additional information for the CAP is provided and addressed in line item fashion as follows:

- 1) "The CAP proposes to field screen soils to determine on-site or off-site disposal. Further clarification will need to be provided as follows: PID Meter calibration location and frequency (calibration should be proposed on-site in conditions where meter will be used), sample containment vessel (a glass vial with a penetrable foil cap brought to ambient temperature is suggested), correction factors that may be used based upon site humidity, the extent of soil that will be collected prior to screening, the concentrations detected that will be considered allowable for spreading on the site, location that soil is proposed to be spread ."

The sparge wells to be installed at the subject site will, most probably, be installed in areas where residual LNAPL contamination is present, therefore, the soils/cuttings from well installation shall be drummed and properly disposed. PID readings will still be collected during sparge well installation for the edification of the client and contractor and will aid in a more comprehensive conceptual site model.

- 2) "The Department understands that all wells are proposed to be sampled quarterly. Based upon review of historical data, it appears that groundwater monitoring wells MW-9, MW-12, MW-16-25, DW-3, DW-4, DW-6, and DW-8 could be monitored at a less frequent interval."

TERRY Environmental concurs with the preceding statement and proposes sampling the aforementioned wells on a semi-annual basis.

411130

- 3) "The Department suggests that MW-13 be properly abandoned due to its location in the median and its history of non-detects."

TERRY concurs and MW-13 will be properly abandoned by a SC licensed driller.

- 4) "The plan states that a phased approach is proposed. Details will need to be provided in regard to the approach that clearly states the trigger for aggressive fluid vapor recovery (AFVR) and duration of the proposed AFVR events."

AFVR events may be employed at the referenced site should free product be detected in any of the monitoring wells. The duration of AFVR event will be based on site specific data. Historically, diminishing returns at this site were reached in under 48 hours of the AFVR system run time.

- 5) "The CAP should propose to sample for dissolved oxygen, nitrate, sulfate, ferrous iron, carbon dioxide, methane, and alkalinity prior to initiation of air sparging and routinely upon initiation of air sparging to measure the progress of biodegradation. The proposed method for analysis of each parameter will need to be provided."

The purpose of this sparge system is to volatilize the contaminants of concern (CoCs) at the subject site. The addition of oxygen into the substrate can also be advantageous for microbial respiration but is not the goal of this site-specific remediation system. Therefore, pursuant to the vast majority of Pay for Performance and other remediation projects that fall under the jurisdiction of the UST program, TERRY may, as the project nears closure, choose to test for Natural Attenuation Parameters.

- 6) "The CAP states that an air sparge pilot test is proposed. Greater detail will need to be provided in regards to how the pilot study will be conducted such as the location of the initial air sparge test well, the method air will be delivered initially, wells that will be measured to determine the effectiveness, the duration of the test, parameters that will be tested, how volatilization will be evaluated, and the frequency of measurements at wells used to determine effectiveness."

The location of the initial sparge well will be in the former source area between MW-3 and RW-1. Ambient air will be injected into the newly constructed sparge well via a single ½ hp oil-less compressor capable of producing an air stream of 5.5 cfm at up to 40 psi. A number of methods will be utilized to determine the radius of influence and effectiveness of the air sparge pilot test including, but not limited to:

- Select wells surrounding the former source area will be monitored for positive pressures.
- Select wells in the vicinity of the new sparge point will be gauged before and during the pilot test to establish changes in ground water elevation.
- Dissolved oxygen levels in the groundwater will be monitored before, during, and after the pilot test.
- Field measurements will be taken at well heads via a PID, were positive pressure is present, to aid in the assessment of the effectiveness of the pilot test in terms of volatilization. It should be noted that contaminants of concern (CoCs) at the subject site are considered amendable by way of air stripping.
- The duration of the pilot test will be no less than 24 hours.

- 7) "Greater detail will need to be provided in regard to purging and sampling methods for groundwater."

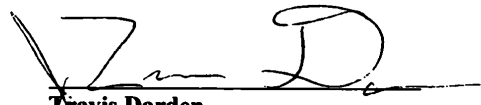
All purging and sampling methods shall be conducted in accordance with the Department's most recent QAPP.

- 8) "The CAP should propose to sample all surface water within 100 feet of the property and WSW-4 routinely. Sampling procedures will need to be provided and the locations where surface water collected illustrated on a scaled map."

There is a drainage ditch that fronts the property that has historically been referred to as SWS-1. Though this surface water body feature is often dry, it is within 100 feet of the property and will be included in the sampling protocol. Also, every effort will be made to sample WSW-4 during the sampling events. The locations of the two sample points are displayed in Attachment I as Figure 1B.

If there are any questions regarding this correspondence, please feel free to contact us at your earliest convenience at (843) 873-8200.

Sincerely,



Travis Darden
Project Manager



Jason A. Terry, PG
President

CC: Ms. Cyndi Suttles, R.L. Jordan Oil Company

ATTACHMENT I



LEGEND & ABBREVIATIONS

- APPROXIMATE 1,000 FOOT RADIUS
- WATER SUPPLY WELL



~300 ft.~



**FIGURE 1- B
RECEPTOR MAP**

HOT SPOT #2015
4424 South Irby Street
Florence, South Carolina
SCDHEC Site ID # 17760

TERRY PROJECT #	2230.13	SCDHEC SITE ID #	17760
SCALE	As Shown	DATE	December 2017